power to protect him from witches who place material objects in his body. Accordingly, the witches destroyed his physical and mental health. The treatment accorded was therefore geared to remove these foreign objects and to act as a positive path for physical and mental health. It was literally a contest between the forces of good and evil. Ackerknecht's statement that primitive peoples do not recognize a dichotomy between physical and mental disease[14] seems to apply generally to the Seneca and specifically to the treatment prescribed for Daniel P. A study of this case also revealed basic fears and anxieties that accompanied white intrusion. These psychological phenomena remain despite Seneca return to some of their old social and religious beliefs and may well be explored by students interested in this problem.

[14] Ackerknecht, 1945, pp. 33–34.

REFERENCES

Ackerknecht, Erwin A. *Problems of primitive medicine*. Bull. Hist. Med. **11**: 503–521. 1942a.

———. *Primitive medicine and culture pattern*. Bull. Hist. Med. **12**: 545–574. 1942b.

———. *Psychopathology, primitive medicine and primitive culture*. Bull. Hist. Med. **14**: 30–67. 1943.

———. *Primitive medicine*. Trans. New York Acad. Sci., ser. 2, **8**: 26–37. 1945.

Fenton, Wm. N. *Iroquois suicide: A study in the stability of a cultural pattern*. Anthrop. Pap. no. 14, Bur. Amer. Ethnol. Bull. 128: 30–137. 1941a.

———. *Masked medicine societies of the Iroquois*. Smithsonian Inst. Rep. for 1940: 397–430. 1941b.

———. *Contacts between Iroquois herbalism and Colonial medicine*. Smithsonian Inst. Rep. for 1941: 503–526. 1942.

———. *The present status of anthropology in northeastern North America: A review*. Amer. Anthrop. **50**: 494–515. 1948.

Hallowell, A. I. *Sociopsychologic aspects of acculturation*. In Linton's "The Science of Man in the World Crisis." New York, 1945.

———. *Some psychological characteristics of the northeastern Indians*. In Johnson's "Man in Northeastern North America." Andover, Mass., 1946.

Parker, Arthur C. *The code of Handsome Lake, the Seneca prophet*. New York State Mus. Bull. 163. 1912.

Snyderman, George S. [Unpublished field notes: Cold Spring Seneca.] 1948.

Speck, Frank G. *The Iroquois*. Cranbrook Inst. Sci. Bull. 23. 1945.

PALEONTOLOGY.—*A leptictid insectivore from the middle Eocene Bridger formation of Wyoming.*[1] C. Lewis Gazin, U. S. National Museum.

During laboratory preparation at the U. S. National Museum of a large *Palaeosyops robustus* skeleton from the Bridger formation, a small insectivore maxilla was encountered in the adhering matrix. Particular interest is attached to this occurrence in demonstrating for the first time the presence in middle Eocene or Bridgerian time, of a leptictid related to the *Diacodon-Ictops* line, bridging a conspicuous hiatus in the recorded geologic range of this group.

The titanothere which the leptictid maxilla accompanied was found by George B. Pearce of the 1930 Smithsonian Institution expedition. The horizon is determined as D_2, according to the stratigraphic subdivisions set up by Matthew.[2]

Its location was approximately 3 miles north of the town of Lone Tree, Wyo., on the north slope of the divide between Sage Creek basin and Henry's Fork, and a little above the "Lone Tree white layer," in $SE\frac{1}{4}$, sec. 18, T. 13 N., R. 113 W.

GEOLOGIC DISTRIBUTION OF LEPTICTIDS

The oldest known probable leptictid is *Gypsonictops hypoconus*, which Simpson[3] described from the Hell Creek and Lance upper Cretaceous, a form surprisingly similar to the later leptictids, indicating this to be a remarkably conservative group and, so far as known, one of the earliest placentals.

Leptictids are rather well diversified in the Paleocene, if one is to judge by the

[1] Published by permission of the Secretary of the Smithsonian Institution. Received March 3, 1949.

[2] Mem. Amer. Mus. Nat. Hist. **9**: 295–297. 1909.

[3] Amer. Mus. Nov. **267**: 6–7, fig. 6. 1927. Also, Mem. Peabody Mus. Yale Univ. **3**(1): 137–138, fig. 53, pl. 32, figs. 3–7. 1929.

number of forms which have been named, but in all, conservative in development, so far as dentitions are concerned. Among the Paleocene forms have been included such genera as *Myrmecoboides*, *Leptacodon*, *Acmeodon*, *Prodiacodon*, and possibly *Xenacodon* in North America alone. The first of these was described by Gidley[4] in 1915, as a marsupial, on the basis of material from the "Gidley Quarry" in the upper Lebo of the Montana Fort Union. Matthew[5] and later Simpson[6] properly referred *Myrmecoboides montanus* to the Leptictidae. *Leptacodon* and *Xenacodon* were named by Matthew and Granger[7] in 1921 for leptictid species from the Tiffany beds, and subsequently species of *Leptacodon* were recognized by Simpson in the Bear Creek fauna[8] (*Lcipsanolestes siegfricdti*) and in the upper Lebo[9] of Montana, and by Jepsen[10] in the Silver Coulee horizon of the Polecat Bench series. In 1921 Matthew and Granger[11] also described *Acmeodon secans*, from the Torrejon beds, and more recently *Prodiacodon* was proposed by Matthew[12] for his Torrejon species, *Diacodon* (*Palaeolestes*) *puercensis*,[13] and to replace *Palaeolestes* (preoccupied). *Empcrodon*,[14] described first as a Lebo deltatheridiid and then shown[15] to be a synonym of *Gelastops*, appears listed (probably in error) by Simpson[16] in 1945 as a leptictid.

The genus *Diacodon*, based on the species *Diacodon alticuspis*, was first described by Cope[17] in 1875 from the "Wasatch" beds, which Simpson[18] has recently named the San Jose formation, in the San Juan Basin of New Mexico. It is not known whether the type specimen, essentially a lower jaw, was derived from Almagre or the Largo member, but the time difference between these two horizons is probably not so significant as was once thought, and the two are probably not so high in the Wasatchean interval. A second species from these beds, which Cope called *Diacodon celatus*, has since been transferred to the genus *Nyctitherium*, and hence to a different family.

In 1880 Cope[19] described the species *Stypolophus bicuspis*, which he later referred to *Ictops* and to which Matthew[20] in 1899 gave the name *Palacictops* (not Cope, as Granger[21] in 1910 indicated), but later[22] showed that it properly belongs in the genus *Diacodon*. The *Diacodon bicuspis* type, a remarkably good specimen, including skull and lower jaws, was collected by Wortman from the Wind River beds in 1880. The collection which Wortman made at that time was later interpreted by Granger and by Matthew as coming from the Lost Cabin horizon. A second form from the Lost Cabin beds, *Parictops multicuspis*, was described by Granger[23] in 1910. *P. multicuspis* is known only from a lower jaw which is characterized by larger, more cuspate, and somewhat more shearing premolars. No information is available as to the variability of *Diacodon bicuspis* in this respect, however, in *Ictops* there is a noticeable variation in the extent to which premolar cuspules are developed. Nevertheless, *Parictops* appears from the limited material to be a valid genus.

Certain references to *Diacodon* in Paleocene, as noted above, were later incorporated under *Prodiacodon*. There remains, how-

[4] Proc. U. S. Nat. Mus. **48:** 395–402, pl. 48, figs. 1–1a. 1915.
[5] Science, n.s., **43:** 109–110. 1916. Also, Trans. Amer. Philos. Soc., n.s., **30:** 215–216. 1937.
[6] U. S. Nat. Mus. Bull. 169: 115–118, figs. 17–18. 1937.
[7] Amer. Mus. Nov. **13:** 2–3. 1921.
[8] SIMPSON, GEORGE G., Amer. Mus. Nov. **297:** 6, figs. 3–3a. 1928.
[9] SIMPSON, GEORGE G., U. S. Nat. Mus. Bull. **169:** 113–115, figs. 15–16. 1937.
[10] Proc. Amer. Philos. Soc. **69:** 510–511, pl. 8, figs. 4–5. 1930.
[11] Amer. Mus. Nov. **13:** 3–4. 1921.
[12] Journ. Mamm. **10:** 171. 1929.
[13] MATTHEW, WILLIAM D., Bull. Amer. Mus. Nat. Hist. **38:** 576–579, figs. 6–8. 1918.
[14] SIMPSON, GEORGE G., Proc. U. S. Nat. Mus. **83:** 229. 1935.
[15] SIMPSON, GEORGE G., U. S. Nat. Mus. Bull. **169:** 107–110. 1937.
[16] Bull. Amer. Mus. Nat. Hist. **85:** 48. 1945.
[17] COPE, EDWARD D., Engineer Dept., U. S. Army, Geogr. Expl. and Surveys West of 100th Meridian, 1st Lt. Geo. M. Wheeler in charge, pp. 11–12. 1875.
[18] Amer. Journ. Sci. **246:** 258. 1948.
[19] Amer. Nat. **14:** 746. 1880.
[20] Bull. Amer. Mus. Nat. Hist. **12:** 35. 1899.
[21] Bull. Amer. Mus. Nat. Hist. **28:** 250. 1910.
[22] MATTHEW, WILLIAM D., Bull. Amer. Mus. Nat. Hist. **38:** 574–576, figs. 3–5. 1918.
[23] Bull. Amer. Mus. Nat. Hist. **28:** 250–251, fig. 6. 1910.

ever, the occurrence of *Diacodon minutus* Jepsen[24] in the Silver Coulee horizon of the Polecat Bench in Wyoming, and of *Diacodon septentrionalis* Russell[25] from the Paskapoo of Alberta. The age of the Wyoming material is not in doubt, but the Alberta occurrences are described in association with materials which do not appear compatible, such as *Chriacus* and *Meniscotherium*.

Eocene leptictids of later than Bridger time include Peterson's[26] *Protictops* from the Duchesne River beds and possibly *Sespedectes* described by Stock[27] from the uppermost Eocene equivalent of the Sespe in California. The culminating stage in North America is seen in the White River Oligocene forms, *Ictops* and *Leptictis*, the earliest described[28] members of the family. Species of *Ictops* are abundantly represented in the Chadronian and Orellan intervals, but *Leptictis* remains known only from the type specimen of *L. haydeni*. It has been suggested before that this specimen may be an abnormal individual of *Ictops dakotensis*. *Mesodectes* Cope[29] is regarded as a synonym of *Ictops*, and *Metacodon* Clark[30] is described as a survival into Oligocene time of the *Leptacodon* type of dentition. Patterson and McGrew,[31] however, transferred *Metacodon* to the Erinaceidae on evidence furnished by additional materials from the Brulé White River beds.

Hypictops[32], n. gen.

Type.—*Hypictops syntaphus*, n. sp.

Generic characters.—Upper premolars relatively large. Molars broad lingually. M^3 unreduced. Parastyle exceedingly well developed on P^3, but apparently weak on succeeding cheek teeth. Cingula very weak on all teeth and hypoconal crest joining protocone at a decidedly basal level.

Hypictops syntaphus[33], n. sp.

Type.—Right maxilla with P^2 to M^3 and part of P^1; U. S. N. M. no. 13445.

Horizon and locality.—Upper Bridger (D_2), about 3 miles north of Lone Tree, Bridger Basin, Wyo.

Specific characters.—Size near that of *Diacodon bicuspis*. P^4 to M^2 smaller than in *Ictops dakotensis*. Specific characters for the most part not distinguished from those of the genus.

Description.—The teeth (see Fig. 1) in the maxillary portion of *Hypictops syntaphus* are well preserved, but at the same time rather well worn. Only the basal portion of the two rooted P^1 is preserved, and P^2 is not complete anteriorly. The remaining cheek teeth are essentially complete, except for slight damage labially to the adjacent root portions of M^1 and M^2.

The premolars of this form are of relatively large size in comparison with other leptictids, with the primary cusp in P^2 and P^3 transversely broad and robust. The tritocone or metacone on both is high and well defined, more noteworthy for this in P^2. The presence or absence of a parastylid on P^2 cannot be determined, but on P^3 this cusp is high and prominent. It is but slightly developed and very basal in position in P^3 of *Diacodon bicuspis*, and weak or vestigial in *Ictops*. *Diacodon tauri-cinerei*[34] exhibits a moderately strong, but decidedly lower, cusp in this position. The deuterocone portion of P^3 shows strong wear but is prominent and anteroposteriorly broad. A slight cingulum is present only along the posterior margin of the tooth and posteroexternal to the tritocone.

The succeeding molariform teeth have exceedingly weak external cingula, not at all like lower Eocene *Diacodon*, or the Paleocene forms which in turn exhibit an even more noticeable development of this character. The reduction of the external cingulum, though greater, is more nearly comparable to that in *Ictops*. The para- and

[24] Proc. Amer. Philos. Soc. **69:** 511–513, pl. 9. figs. 7–9. 1930.

[25] Amer. Journ. Sci. **17:** 166–168, 173–175, fig. 2 1929.

[26] Ann. Carnegie Mus. **23:** 374–375, fig. 1. 1934.

[27] Proc. Nat. Acad. Sci. **21:** 218–219, pl. 1. figs. 6–6a. 1935.

[28] Leidy, Joseph. Proc. Acad. Nat. Sci. Philadelphia **20:** 315–316. 1868.

[29] Engineer Dept., U. S. Army, Geogr. Expl. and Surveys West of 100th Meridian, 1st Lt. Geo. M. Wheeler in charge, p. 30. 1875.

[30] Ann. Carnegie Mus. **25:** 310, pl. 26, figs. 1–2. 1937.

[31] Publ. Field Mus. Nat. Hist., Geol. ser. **6:** 257–269, figs. 66–72. 1937.

[32] ὑπό, under; plus *Ictops*: in allusion to its stratigraphic relationship.

[33] σύνταφος, buried with: in allusion to its burial with *Palaeoyops robustus*.

[34] Jepsen, Glenn L., Proc. Amer. Philos. Soc. **69:** 124–126, pl. 3. 1930.

metastyles, nearly obliterated by wear, were, apparently, not particularly well developed, at least not in the true molars. There is some evidence through tooth spacing and root placement that P^4 may have had a moderately developed parastyle and metastyle, though scarcely as much as in *Diacodon bicuspis* or *Diacodon tauri-cinerei*. The lingual portions of the molariform teeth are broad and elongate, not so acute lingually as in *Diacodon* and earlier forms in general, or so arcuate as in *D. tauri-cinerei*. The lingual portions of these teeth resemble more nearly those in *Ictops*, but with the hypocone not so highly placed on the posterior wall of the protocone. The hypoconal crest is separate from the protocone to a more basal position. A very slightly developed anterior cingulum is present on the forward wall of the protocone of each of these teeth. Lastly, the third molar is well developed, resembles that in *Ictops*, but is less reduced in size and without the cingulum around the lingual margin of the tooth.

Discussion.—It seems possible, from the limited information available, that *Hypictops syntaphus* is closely related to *Parictops multicuspis* Granger from the Lost Cabin horizon. The latter was described from a lower jaw, but the relatively large size of the lower premolars and the development of highly placed cusps on the anterior and posterior margins of the protoconids of these teeth is suggestive. A Princeton specimen (no. 13419) from Cottonwood Creek in the Wind River Basin, hence probably Lysite in age, resembles *Parictops multicuspis* and has certain upper teeth exposed, including the second, third, and part of the fourth premolars, as well as a third molar. The crowns of P^2 and P^3 are partly broken down, but P^2 exhibits anteriorly a very small, basal parastyle, a medianly elevated tritocone, and a small posterior cingular cusp. P^3 exhibits a parastyle as in *Hypictops syntaphus*, but there is evidence of a posterior cingular cusp as in P^2, not present in these teeth of the Bridger form. The premolars are little more than half the size of those in *H. syntaphus*. P^4 is too incomplete for comparison, but M^3 is relatively much narrower transversely and has a far better developed hypocone than in *H. syntaphus*.

Little can be said at this time, without a more comprehensive review of all the leptictid material, as to the phylectic lines within the family, or as to whether more than one line can be certainly defined. In any case, it appears that *Hypictops syntaphus* differs from both *Diacodon* and *Ictops*, but can not be regarded as intermediate in all respects to these two. *Hypictops* may be derived from *Diacodon*, possibly through *Parictops*, whereas *Ictops* appears more likely to have been derived from *Diacodon* through some other line.

MEASUREMENTS IN MILLIMETERS

Length of dentition P^1 to M^3, incl.	23.0
Length of premolars	14.8
Length of molars	8.3

	P^1	P^2	P^3	P^4	M^1	M^2	M^3
Anteroposterior diameter externally	2.6	a3.8	4.3	3.5	a2.9	a2.9	2.5
Anteroposterior diameter lingually				2.3	2.4	2.3	1.9
Transverse diameter at right angles to tooth row	1.2	1.5	3.1	4.4	4.6	4.8	3.9

a, approximate.

FIG. 1.—*Hypictops syntaphus*, n. gen. and sp.: Occlusal view of right upper dentition, P^1 to M^3, incl. U.S.N.M. no. 13445. ×4. Drawing by William D. Crockett.